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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/528,503	03/27/2005	Mohamed Yahia Benslimand	6495-0096WOUS	5038
35301	7590	09/21/2007		
MCCORMICK, PAULDING & HUBER LLP CITY PLACE II 185 ASYLUM STREET HARTFORD, CT 06103			EXAMINER DOUGHERTY, THOMAS M	
			ART UNIT 2834	PAPER NUMBER
			MAIL DATE 09/21/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

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**Office Action Summary**

Application No.

10/528,503

Applicant(s)

BENSLIMAND ET AL.

Examiner

Thomas M. Dougherty

Art Unit

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 September 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-13 and 16-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, 16, 17 and 20-22 is/are rejected.
- 7) ☒ Claim(s) 6-13, 18 and 19 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 March 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Arguments***

Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Pei et al. (US2003/0006669). Pei et al. show (figs. 1A, 1B, 3C, 3D) an actuator comprising: a tubular portion (182) extending in a longitudinal direction, the tubular portion (182) comprising a body of an elastomeric material (paragraph 0043) arranged between two electrodes (e.g. 14, 16 in figs. 1A, 1B), wherein any line of symmetry extending between two opposite points on a periphery in a cross-section perpendicular to the longitudinal direction has a length which is different from any other such line of symmetry.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-4, 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Toda (US 5,321,332) in view of Pei et al. (US2003/0006669). Given the invention of Pei et al. as noted above, he doesn't show at least two elements comprising a rolled up sheet.

Toda shows (figs. 1D, 1E, 3B) an actuator comprising: a tubular portion (40) extending in a longitudinal direction (into the paper), the tubular portion (40) comprising a body of an material arranged between two electrodes (20 I sbetween 24 and 26, 22 is between 26 and 28), wherein any line of symmetry extending between two opposite points on a periphery in a cross-section perpendicular to the longitudinal direction has a length which is different from any other such line of symmetry.

The tubular portion (40) is formed by rolling up a sheet comprising at least two elements (20 and 22) each comprising a body of an material and an electrode (as noted) attached to a first surface thereof, wherein deformation of the body is restricted in a first direction and supported in a another, second, direction. See figures 1D and 1E which shows that expansion direction depends on the applied potential difference. Note that the elastic actuator has a length and elastically deforms in the lengthwise direction either by shrinkage or expansion.

The second direction is parallel to the longitudinal direction.

The first direction is substantially perpendicular to the second direction.

Toda shows (figs. 1D, 1E, 3B) actuator comprising: a material (as noted above) arranged between two electrodes (24, 26, 28) forming a tubular portion (into the paper)

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extending in a longitudinal direction and having a cross-section, wherein the cross-section of the tubular portion is asymmetrical.

The tubular portion (40) is formed by multiple layers of material (20,22) and electrode (24, 26, 28).

As the Applicants' noted, the material of Toda is not an elastomer. It would have been obvious to one having ordinary skill in the art to use any of the elastomeric materials of Pei et al. in the device of Toda since the materials are clearly interchangeable as Pei et al. note in paragraph [0043]. It would further have been obvious to employ an elastomer, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5 and 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pei et al. (US 2003/0006669) in view of Kawasaki (JP 55-91299). Given the invention of Pei et al. as noted above, they do not show any corrugations extending in the first direction. They do not show at least one corrugated surface that is molded or electrodes deposited on the corrugated surface which correspond to the corrugations of the corrugated surface of the elastomeric material.

Kawasaki shows (fig. 4) the body (11") and the electrode (12") comprise corrugations.

At least one surface is corrugated.

They don't note how the device is made. The device is piezoelectric, which description includes electroactive elastomers.

It would have been obvious to one having ordinary skill in the art to employ the corrugations of Kawasaki in the device of Pei et al. at the time of that invention since this allows for significant bending when the device is actuated.

Recitation of how the device is made does not carry patentable weight at this time since it does not implicitly describe an additional structural feature of the invention. Additionally the method of forming the device is not germane to the issue of patentability of the device itself. Therefore, this limitation has not been given patentable weight.

### ***Allowable Subject Matter***

Claims 6-13, 18 and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

In addition to previously cited reasons for allowance, the prior art does not show nor fairly suggest a core element for a rolled elastomeric actuator that is also an elastomer.

### ***Conclusion***

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The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Additional prior art cited reads on at least some aspects of the claimed invention.

Direct inquiry to Examiner Dougherty at (571) 272-2022.

*tmd*  
tmd

September 17, 2007

*Thomas M. Dougherty*  
**TOM DOUGHERTY**  
**PRIMARY EXAMINER**